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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,752	01/09/2006	Yasuhiro Matsumoto	001560-589	3766
21839	7590	10/31/2008	EXAMINER	
BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404				LACLAIR, DARCY D
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE			DELIVERY MODE	
10/31/2008			ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/563,752	MATSUMOTO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Darcy D. LaClair	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 August 2008.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-13 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____ .                        |

## DETAILED ACTION

1. All outstanding rejections and objections, except for those maintained below are withdrawn in light of the amendment filed on 8/18/2008.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

2. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schreiber et al. (5,443,911), Schreiber et al. (5,021484), and Napier (3,357,791).

The rejection is adequately set forth in **paragraphs 2 – 14** of the office action mailed 4/16/08, and is incorporated here by reference.

### ***Response to Arguments***

3. Applicant's arguments filed 8/18/08 have been fully considered. Specifically, (A) applicant has amended the title for increased specificity, and claims 3, 4, 6, and 8 to clarify the alumina based compound, and (B) argued the rejection of claims 1 -13 fails to establish a proper case of *prima facie* obviousness (B-1) because Schreiber's flame retardant additives, in particular aluminum hydroxide, does not teach or suggest a phenol resin composition, a boehmite , and one or more inorganic compounds, (B-2) Napier's teaching of fibrous boehmite for use in elastomer products and ***plastics for strength and abrasion resistance*** does not remedy the deficiencies because elastomers and rubber-like products are not phenol resins, (B-3) fibrous boehmite is not

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acicular or cylindrical, (B-4) Napier has taught platelet-like structures only in teaching the avoidance of these structures, and (B-5) the combination of prior art must teach an understanding of the particular results which would be achieved by the new combination, and the prior art did not teach or suggest an improvement of thermal conductivity, mechanical strength, workability, or moldability.

With respect to (A), the objections are withdrawn in light of applicant's amendments.

With respect to (B), applicant's arguments have been considered but are **not persuasive**.

With regard to argument (B-1), as applicant has noted, it was acknowledge that Schreiber '911 fails to teach boehmite, and Schreiber '484 provides only that boehmite was known at the time of the invention. Schreiber does teach the phenol resin and an inorganic filler which can be aluminum hydroxide. (see col 7 line 23). The aluminum hydroxide meets applicant's limitations for both "one or more inorganic compounds other than the boehmite" as well as "an alumina-based compound other than the boehmite."

With regard to argument (B-2) that Napier's teaching of fibrous boehmite for use in elastomer products and **plastics for strength and abrasion resistance** does not remedy the deficiencies because elastomers and rubber-like products are not phenol resins, the examiner notes that Napier does teach

fibrous boehmite for use in plastics in manners analogous, an in amounts comparable, to those describe for the use in rubber. For example, fibrous boehmite can be used as reinforcing filler in making plastic films, coatings, paints, adhesives, or other plastic articles.

Napier at col 12, line 8-11

Contrary to applicant's assertion, Napier provides a clear motivation for incorporating these boehmite particles in a plastic. Schreiber '911 refers to a patent which discloses a plastic product comprising a brominated and non-halogenated epoxide resin. (col 1 line 66) Napier later discloses brominated epoxy resins and non brominated epoxy resins for the resin of the invention (col 2 line 43-46). Schreiber's invention is a phenol formaldehyde resin (see col 2 line 60-67) The resin of Schreiber is clearly considered to fall within the range of plastics. Furthermore, the examiner notes that Bakelite, produced in 1909, is a phenol-formaldehyde, and considered to be the first true plastic. (See support from "The History of Plastics") The Napier document is dated 1967, so Napier would have been aware of phenol-formaldehyde (or epoxy) resins as encompassed by the term "plastics." That Napier notes the beneficial effects of strength and abrasion resistance, as well as reinforcing capabilities (see Napier col 11 line 71 - col 12 line 11) for plastics provides a clear motivation to incorporate the boehmite of Napier into a phenol-formaldehyde resin, such as that provided by Schreiber.

With regard to argument (B-3), the fibrous boehmite constitutes a cylindrical shape. A fiber is an elongated piece with a smaller cross-section. Napier describes fiber particles ranging from 300 to 30,000 angstroms in length on the long dimension, and 20 to 400 angstroms and 10 to 50 angstroms in the cross-section. The overlap in the cross sectional diameters would permit a circular cross-section. Cylinders are elongated structures which most often have a circular cross-section, however they can

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have elliptical, parabolic, or hyperbolic, or polygonal cross sections. This substantially describes a fiber.

With regard to argument (B-4) Napier has taught a variety of embodiments for the boehmite fibers. While cylindrical boehmite is the preferred embodiment, Napier discloses the blade or platelet shapes as a “second embodiment,” and not a faulty process. (Napier col 2 lines 30-45) In fact, Napier states

Although I have spoken of “fibrous” products, it should be noted that products of other physical characteristics can be formed according to the process of my invention. In fact, one feature of my process is its flexibility, where-by alumina monohydrate particles of very low or trace amounts of inorganic impurity (i.e. below 0.05 and preferably below 0.01 weight percent) can be made in a wide variety of physical forms. For example, the product can consist of minute, loosely agglomerated platelets having maximum average dimensions of about 300 angstroms. (Napier col 3 line 16-26)

Clearly, Napier not only observed the other structures, but characterized the methods of achieving these structures, based on time, temperature, and manner of acid treating. (col 3 line 35) Napier discloses that moderately concentrated dispersions of the platelet-form show thixotropy which was thought previously to exclusively a property of fibrous aluminas, and accordingly, these platelets are valuable as thixotropes, anchoring agents, mordants, surface modifiers, finishing agents, and emulsifying and suspending agents. (col 5 line 60-70) This demonstrates that, contrary to applicant’s assertion, Napier recognizes both the production of the structure, as well as its industrial benefits.

With regard to (B-5), Napier has provided teachings that the boehmite can be used as a reinforcing filler, and to provide strength and abrasion resistance, (col 11, line 74, col12, line 8-11), and thixotropy (col 5 line 60-70), which would improve the

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workability. This provides clear motivation for incorporating the boehmite particles into a plastic such as the epoxy, or phenol-formaldehyde of Schreiber. Further, Napier provides clear consideration of the results which would be achieved, namely, a stronger more abrasion resistant product and a thixotropic composition, which would directly assist with processability.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takenaka et al. (US 6,355,601), Which discloses a friction material with scaly boehmite and a binder which is exemplified as a phenolic resin.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Thursday 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Darcy D. LaClair  
Examiner  
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/DDL/

/Vasu Jagannathan/  
Supervisory Patent Examiner, Art Unit 1796